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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/589,826	08/17/2006	Andrea De Luca	NOTAR-038US	9661

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EXAMINER

MOK, ALEX W

ART UNIT	PAPER NUMBER
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2834

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/589,826	DE LUCA ET AL.	
	Examiner	Art Unit	
	ALEX W. MOK	2834	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 August 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/17/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-6 and 8 are rejected under 35 U.S.C. 102(b) as being anticipated by Grimmel et al. (US Patent No.: 6543712).

For claim 1, Grimmel et al. teach a laying head for forming coils using continuous and substantially rectilinear rolled products comprising a support structure (reference numeral 36, figure 1), a rotor (reference numeral 12) adapted to rotate about its own axis (reference numeral 22) under the action of motor means and held in rotation by the support structure by means of two bearings (reference numeral 20), characterized in that at least one of the bearings incorporates vibrations damping means (see figure 1).

For claim 2, each of the bearings in Grimmel et al. can be considered to incorporate vibrations damping means (figure 1).

For claim 3, Grimmel et al. disclose a plurality of coils (reference numeral 44) arranged around the rotor in proximity of said bearing, the coils being adapted to produce a magnetic field under the action of control means, said magnetic field creating a force substantially perpendicular to the axis (reference numeral 22, see figure 1) and of a predetermined intensity so as to eliminate the inertial forces generated by the masses of the rotor during rotation about the axis (see column 3, lines 20-22).

For claims 4 and 5, Grimm et al. disclose the plurality of coils being arranged along a hemicycle of the rotor and along the entire circumference of the rotor (see figure 4).

For claim 6, Grimm et al. teach the coils arranged in a plane substantially perpendicular to the axis and which intersects said axis in a zone intermediate to the two bearings and in proximity of a first of these (see figures 1, 4).

For claim 8, Grimm et al. teach the coils being arranged in parallel between the rotor and the support structure (see figures 1, 4).

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grimm et al. as applied to claims 1, 3, and 6 above, and further in view of Higuchi et al. (US Patent No. 5142177).

For claim 7, Grimm et al. teach the claimed invention except for the coils being arranged in series between the first bearing and the support structure. Higuchi et al. teach the coils (see figure 1, reference numeral 5) being arranged in series between the first bearing (reference numeral 2) and the support structure (reference numeral 8), and it would have been obvious to include the series arrangement of the coils and bearings

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as disclosed by Higuchi et al. in the invention of Grimmel et al. for the purpose of further providing dampening of the vibrations in the laying head.

5. Claims 9-12 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. as applied to claim 1 above, and further in view of Lewis et al. (US Patent No.: 4643592).

For claim 9, Grimmel et al. teach the claimed invention except for the vibrations damping means comprising an oil film bearing. Lewis et al. disclose bearings for a rotating machine using oil (reference numerals 1, 14, 15, 16, 17, figure 1, see column 5, lines 40-44). It would have been obvious to include the oil film bearing as disclosed by Lewis et al. in the invention of Grimmel et al. since Lewis et al. also use this technique for vibrations (see the Abstract), and a person of ordinary skill would have applied this configuration for reducing the vibrations in the layer head.

For claim 10, Grimmel et al. teach the claimed invention except for the oil film bearing being of the hydrodynamic type. Lewis et al. disclose the film bearings for the use of hydraulics (see column 5, lines 64-68), which constitutes the hydrodynamic type. It would have been obvious to have the bearings be hydrodynamic as disclosed by Lewis et al. in the invention of Grimmel et al., since this would further improve the means of reducing the vibrations.

For claim 11, Grimmel et al. disclose the claimed invention except for at least one axial type hydrodynamic bearing being provided in proximity of a rolled product inlet side. Lewis et al. disclose the hydrodynamic bearing as explained for claim 10 above,

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and this would be in proximity of the rolled product inlet side when applied to the invention of Grimmel et al. (see figure 1). It would have been obvious to modify the rolled product inlet side of Grimmel et al. to have the bearing of Lewis et al. be in proximity, since this would further enhance the reliability of the device by achieving acceptable engineering costs.

For claim 12, Grimmel et al. teach the claimed invention except for the hydrodynamic bearing being of the "tilting pad" type. Lewis et al. disclose the bearing being a "tilting pad" (see column 5, lines 44-48), and it would have been obvious to include the tilting pad of Lewis in the invention of Grimmel et al. since this would further provide vibration reduction.

For claim 18, Grimmel et al. teach the claimed invention, but do not specifically teach the method for vibrations damping of a laying head comprising the following steps: a) determining by means of sensors of dynamic parameters relative to the vibrations produced by the rotor during a rotation thereof on the support-structure; b) transmitting predetermined data, relative to the dynamic parameters, to electronic control means; c) defining activation modes of magnetic coils so that magnetic forces are produced, the resultant of which is such as to eliminate inertial forces producing vibrations in the rotor. Lewis et al. disclose sensors for determining parameters (reference numerals 22, 23) for transmitting data to an electronic control (reference numeral 24, see column 6, lines 17-47), and this when applied to the magnetic coils of Grimmel et al. can control the magnetic forces produced by the coils. It would have been obvious to include this method of vibration damping as disclosed by Lewis et al. in

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the invention of Grimmel et al. since Lewis et al. also use this method for reducing vibrations in the machine (see the Abstract), which is the same field of endeavor as the applicant.

6. Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. and Lewis et al. as applied to claims 9 and 10 above, and further in view of Raimondi (US Patent No.: 3680932).

For claim 13, Grimmel et al. and Lewis et al. disclose the claimed invention except for the hydrodynamic bearing being of the lobed type. Raimondi discloses the bearings having lobes (figures 8, 10, 12, see column 3, lines 1-10). It would have been obvious to have the lobed type bearings as disclosed by Raimondi in the inventions of Grimmel et al. and Lewis et al. since Raimondi uses this technique to provide bearing stability (column 1, lines 25-28), the same problem the claimed invention is concerned with.

For claims 14-16, Grimmel et al. and Lewis et al. disclose the claimed invention except for the hydrodynamic bearing being provided with three lobes, two lobes, or the arrangement of the lobes on the bearing being asymmetrical. Raimondi discloses the bearing having two or three lobes, and the lobes being asymmetrical (see figures 8, 10, 12). It would have been obvious to include two, three lobes and the asymmetrical configuration as disclosed by Raimondi et al. in the inventions of Grimmel et al. and Lewis et al. since this would further limit the number of structural elements and enhance the reliability of the system.

7. Claim 17 is rejected under 35 U.S.C. 103(a) as being unpatentable over Grimmel et al. and Lewis et al. as applied to claim 9 above, and further in view of Dede (US Patent No.: 6135639).

For claim 17, Grimmel et al. and Lewis et al. disclose the claimed invention except for the oil film bearing being of the "squeeze film" type. Dede discloses the bearing of the squeeze film type (reference numeral 110, figure 1). It would have been obvious to include this squeeze film type bearing as disclosed by Dede in the inventions of Grimmel et al. and Lewis et al. for the purpose of further improving the means of reducing vibrations in the device.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references disclose embodiments of bearings/vibration dampening: US 20020190592 A1 (Kawasaki, Shuichi), US 20020074883 A1 (Yamauchi, Akira et al.), US 4999534 A (Andrianos; Nikos P.), US 4339780 A (Okubo; Shigeo).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALEX W. MOK whose telephone number is (571)272-9084. The examiner can normally be reached on 7:30-5:00 Eastern Time, 1st Friday off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Quyen P. Leung can be reached on (571) 272-8188. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Quyen Leung/
Supervisory Patent Examiner, Art Unit 2834

/A. W. M./
Examiner, Art Unit 2834